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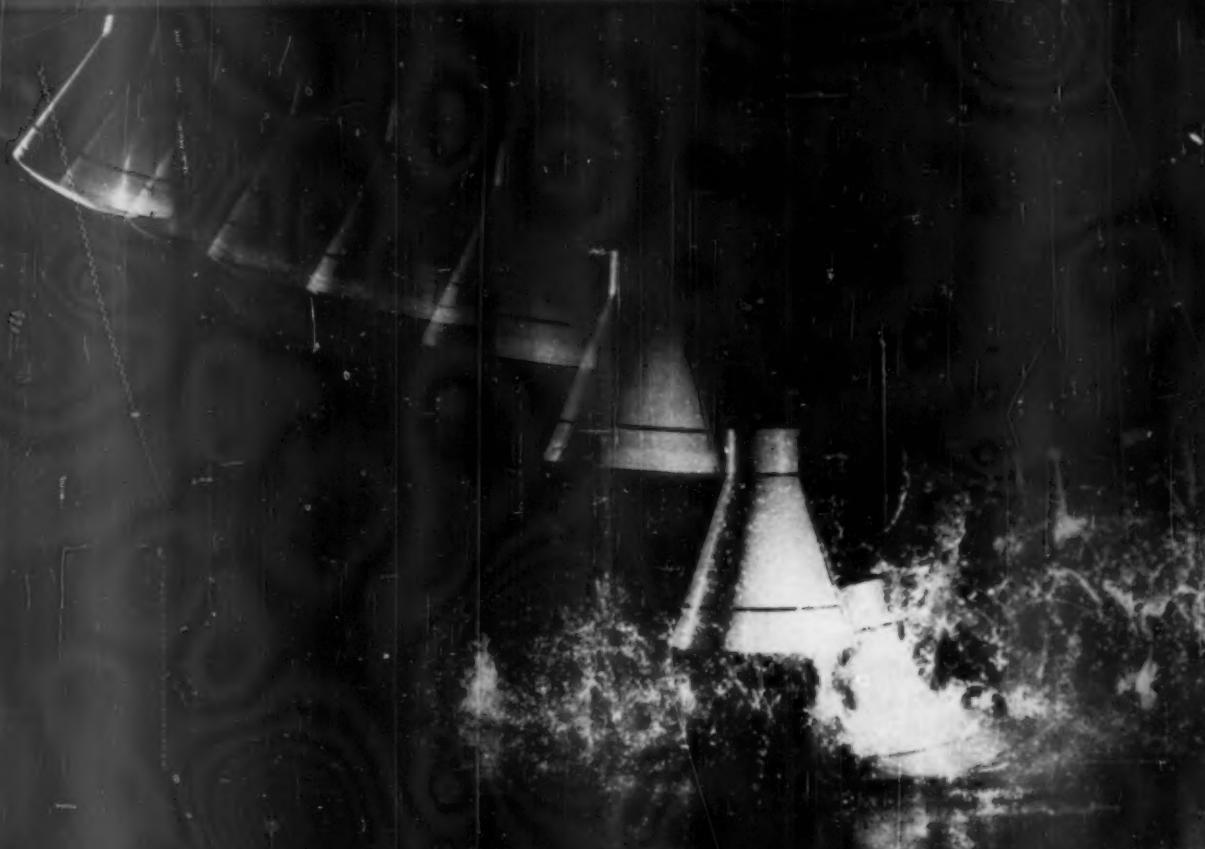
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October 31, 1959

VOL. 34 NO. 43

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



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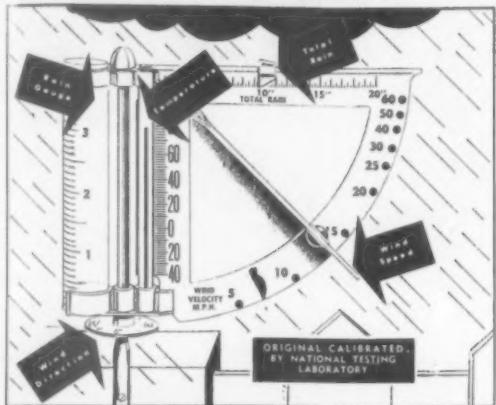
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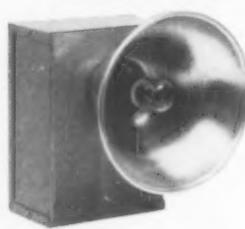
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TECHNOLOGY

A-Plane Overdue

With a vigorous developmental program launched now, the United States could catch up to within two years of the Soviet Union in its plans for an atom-powered airplane.

IF A DECISION could be made to develop an atomic airplane under the "philosophy of concurrency," the United States might catch up to within an estimated two years of Russia.

The best guess is that Russia will fly its prototype atom-powered airplane in 1963, and the U. S. might have a plane flying by 1965 if it starts a vigorous developmental program now.

At present, the U. S. has only two developmental contracts out. Both are for reactor-engine systems. Under the philosophy of concurrency, development of engines, airframe, controls, instruments, ground-support equipment and crews would go on simultaneously. The idea would be to bring everything into readiness by a target date.

The philosophy of concurrency originally was proposed by Air Force Lt. Gen. Bernard Schriever, now commander of the Air Research and Development Command. It was aimed at speeding up development of the Atlas and Thor missiles to an operational status. The philosophy is credited with making the Atlas operational in September, two to three years ahead of the time that would have been achieved under

a normal step-by-step developmental program.

Development of the Atlas took five years after contracts were signed. Development of an atomic-powered airplane with all its strange, new problems might compare roughly on a time scale to development of the Atlas, which is an exceedingly complex instrument.

The Government has a contract with General Electric Company for development at its Evendale, Ohio, plant of a direct-cycle nuclear engine system. In this engine, compressed air is heated in a reactor core and exhausted directly through an engine turbine and nozzle.

Another contract, with Pratt & Whitney Aircraft Division of United Aircraft Corporation, East Hartford, Conn., is for an indirect cycle engine. In this engine, compressed air is heated in a heat exchanger by a liquid-metal coolant circulated through the reactor.

There is no contract for development of an airframe. At the moment, the U. S. has two engines under development but no airframe under development to fly them in.

Meanwhile in Moscow, Yu N. Sushkov of the All-Union Society for the Dissemination of Scientific and Political Knowledge

wrote a paper stating Russia had ironed out many developmental problems and was ready then (in 1958) to start building a prototype.

If Russia applies its own brand of concurrency, in its zeal to beat the U. S. in scientific accomplishments, it is believed the Soviet Union could have its prototype atom plane ready to fly by 1963.

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GEOPHYSICS

Conference Seeks Future Peace for Antarctica

REPRESENTATIVES of 12 nations are meeting in Washington, D. C., in hopes of being able to agree to a treaty that will insure that Antarctica's future will be as peaceful as her past.

Antarctica is a continent twice the size of the United States with an interior ice dome ten times as high as the Empire State Building.

It is cut by a gorge twice as deep, though not nearly as long as the Grand Canyon, and contains a mountain range about five times as large as the Adirondacks, with at least one peak as high as Mt. McKinley.

Clothed in ice and battered by nature's fiercest onslaughts, its manufacture of cold air affects all the world's weather.

Although many nations have laid claim to parts of it, the Antarctic belongs to no nation and has never echoed the sounds of war.

This conference on Antarctica was proposed by President Eisenhower on May 3, 1958, in letters to the 11 other nations that cooperated in the Antarctic program of the International Geophysical Year. The nations participating are Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom and the United States.

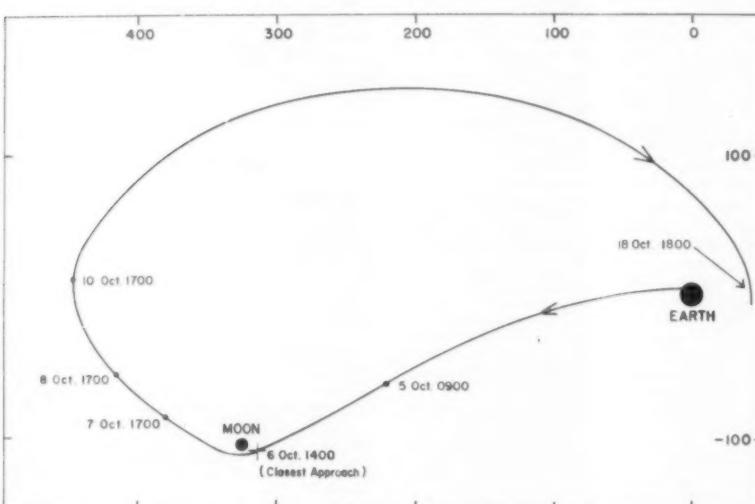
Successful conclusion of a treaty would guarantee the freedom of scientific investigation and continuation of scientific cooperation in the Antarctic that characterized the I.G.Y. Also, it would insure that the world's only uninhabited continent would be used solely for peaceful purposes and be free of military bases.

The conference will not deal with territorial claims. Although many nations have made such claims on the basis of proximity and exploration, the United States and Russia have not. Nor do these two nations recognize other claims. What is sought is merely the continuation of this lifeless polar expanse as a peaceful scientific laboratory for the benefit of all nations.

Exploration both prior to and during the I.G.Y. added much to man's knowledge of Antarctica, but much, such as the extension and accessibility of its mineral deposits, still remains a mystery that only a cooperative effort can solve.

It is hoped by many that successful internationalization of the last mass of unassigned land on earth might lead to a similar solution to the control of outer space.

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RUSSIAN MOON—This diagram of the artificial satellite launched by Russian scientists and now circling the earth and its moon was prepared by the Smithsonian Astrophysical Observatory, Cambridge, Mass. Lunik III, as the satellite is called, takes an estimated 13 days to make a complete circuit of its orbit. Its perigee, or nearest point to the earth, is estimated at 24,853 miles; apogee is 292,000 miles. Lunik III's life expectancy is described as "unlimited."

SCIENTIA INTERNATIONAL

NOVAS DEL MENSE IN INTERLINGUA

Nutrition.—Estudios conduce al Bureau de Pisceria Commercial in Washington revela que in multe pisces approximativamente 50 pro cento del oleo es nonsaturate e que approximativamente 10 pro cento es altermente nonsaturate. On designa como altermente nonsaturate un graxia in que le moleculas contiene 5 o 6 nonsaturate atomos de carbon. Le moleculas de oleos vegetal, que es etiam nonsaturate, contiene al media solmente 2 tal atomos. Le question de saturation e nonsaturation de graxia es importante proque graxia nonsaturate age contra le formation de excessos de colesterol in le sanguine, e isto, de su parte, es importante proque colesterol pare haber un rolo causal in le occurrentia de morbos sclerotic del vasculatura. Le oleo de pisces esseva altermente efficace in reducer le nivellus de colesterol in le sanguine de animales experimental, e iste reduction esseva directemente propotional al grado de nonsaturation del oleo usate. Recercas es in progresso pro desarrollar un metodo de separar e extraher le plus altermente nonsaturate fractiones de oleo piscin.

Cigarettes e Cancere.—Dr. H. Flack, re-dactor de un periodico del Association Britannic Medical, ha constatare que le prova del conexion inter le fumar e cancere pulmonar exerce nulle o quasi nulle influencia super le consumpcion de tabaco. Ille conclude que omne effortio de inducer fumatores a restringir lor uso de tabaco es van. Il es, secundo Dr. Flack, le non-fumatores, e specialmente le juvenes in nostre scholas, a qui on debe addressar le propaganda anti tabaco. Il es difficile cessar le fumar sed facile non començar lo si on comprende su absurditate. Il es impossible, dice Dr. Flack, salvar le fumatores, sed il es ben possibile proTEGER futur generationes.

Chirurgia.—Dr. J. C. Houck de Washington reporta haber discoperte in le pancreas de porcos un enzima que destrue le fibras dur in textio de cicatrisation. Tal fibras consiste principalmente del protina cognoscite como collageno, e le enzima que dissolve los esseva designate como procollagenase. Dr. Houck es currentemente occupate a isolare procollagenase in forma pur. Le importantia del discoperta es que le nove enzima promitte devenir utile in le suppression de disfigurante cicatrices. Le studio de su effectos va etiam producir nove informaciones super le structura de collageno que es ancora multo obscur.

Astronautica.—Professor H. Oberth, un del pioneros in le campo del roccetteria scientific in Germania e plus recentemente un associato de Dr. W. von Braun in su recercas de roccetteria al Arsenal Redstone in Alabama, ha elaborate le planos pro un vehiculo adaptate al exploration del luna. Un tal vehiculo debe esser capace a superar le difficultates extraordinari del terreno e del ambiente del luna que es characterisate per le absentea de omne atmosphera, per un gravitate reduceite, per extremamente acute alterations de temperatura, e per un superficie plus pulvrose que ulli cognoscite in terra. Le vehiculo projecte per Prof. Oberth possede omne le requirite qualificaciones. Illo es stabilisate per medio de un gyroscopio, illo se move super ercuss, e, per medio de un pede retractabile e extensibile, illo pote saltar grande abyssos. Su motor consume peroxydo de hidrogeno o altere substantias chimic, sed pro conserver combustible illo etiam utilisa un sistema de energia solar. (Le vehiculo de Prof. Oberth es non ancora in production in series.)

Lucta Contra Pestes Animal.—In Florida, le nocivissime verme *Chrysomyia macellaria* ha

essite praticamente supprimite per le technica de sterilizar grande numeros de masculos per irradiation. Proque le femininas de iste specie es monogame, le sterilisation de masculos—providito que illos remane normalmente potente—resulta in un multo plus grande reduction del population que non importa qual programma de extermination immediate. Le mentionate technica de irradiation esseva desenvolopate per Dr. E. F. Knipling del Statounites Departamento de Agricultura. Dr. Knipling nunc propone le uso de simile methodos in le caso de certe rodentes e altere pestes animal. In iste casos, le irradiation debera esser reimplacate per le application de substantias chimic que ha nulle efecto mortal sed destrue le fertilitate del masculos. Le identification e synthese commercial de tal substantias es, secundo Dr. Knipling, le plus urgente desiderato in le luta contra pestes animal.

Electricitate.—In celebrar le septanta-quinte anniversario del prime illumination electric in Berlin, le *Deutschlandhalle* in ille citate esseva illuminate per un sol ampulla fluorescente de 65,000 watt. Le *Deutschlandhalle* es le plus grande halla de Europa. Illo mesura circa 100 per 80 m.

Recercas de Cancere.—Post isolare, per medio de un corde-pulmón artificial, le circulation del sanguine in le cerebro ab illo in le resto del corpore, medicos al Universitate Kentucky ha trovate possibile administrar al cerebro drogas anticancerose in doses plure vices plus forte que le doses que es normalmente mortal post lor introduction in le circulation general. Usque nunc le metodo ha essté usate solmente in animales experimental. On lo considera como promittente pro le tractamento de cancere cerebral.

Antibioticos.—Es reportate ab un hospital in Cleveland (probablemente non como phenomeno exceptional) que in recente tempores enterocolitis staphylococcal ha devenite marcatamente plus frequente. In le curso de dece menses, 431 casos de diarrhea esseva observate, e in 61 de istos, staphylococcus esseva definitivamente identificate. Vinti del 61 casos esseva mortal. Le grande majoritate de iste pacientes habeva recipite antibioticos le quales evidentemente destruiva le normal flora de bacterios intestinal de maniera que le campo esseva abandonate al staphylococcus sin ulle competition.

Recercas de Cancere.—Duo recercatores al Instituto Memorial Roswell Park in Buffalo, New York, ha trovate que plus que un medietate del patients in un extense serie de casos de cancere del cervice uterin habeva habite chocante experientias emotional in coincidentia temporal plus o minus directe con le declaration de lor disordine neoplastic. Le duo homines vide hic definitamente plus que un association accidental. Illos crede que le question del presentia de stress emotional deberea esser studiate etiam in le caso de altere cancers. Illes mentione Neville Chamberlain, Robert Tait, e John Foster Dulles como victimas de cancere in qui emotionalmente disequilibrante experientias precedeva le declaration de lor morbo mortal.

Chirurgia.—Recente statisticas indica que in le hospitales statounitese le mortalitate operatori decrese frappantemente. In le caso de un grande e representative hospital, ille reduction esseva 43 pro cento super le base de un comparation del duo periodos 1945 a 1954 e 1925 a 1934. Le plus frappante reductions ha occurrite in le mortalitate post operations del vesica biliar, del glandula thyroide, del duodeno (in casos de ulcer), e del esophago (in casos de cancer).

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GENERAL SCIENCE

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AGRICULTURE

Agriculture Needs Tropics

NEW FOOD crops may soon be developed for growing in the hot, rainy climate of the tropics.

Even though man has not domesticated an important new food plant since prehistoric times, he may be forced to do so, Dr. John E. Cantlon of Michigan State University, East Lansing, Mich., believes. A growing world population and the current wear and tear on farm land will probably make it necessary to develop tropical areas into major producers of food.

"This is not an easy task," he said, "even though hot, rainy climates produce immense amounts of vegetation."

The trouble is that our major grain plants, except for rice, are not suitable for large-scale farming in the humid tropics.

"One approach is to domesticate new food plants that will be suitable."

Many of the world's important crops, he explained, were first domesticated in such semi arid regions as the area around the Tigris and Euphrates Rivers in Iraq and the Central and South American highlands, where it was not necessary to clear forests to start cultivation.

"These plants are suitable for farming in much of the temperate zones because

they are similar to the natural vegetation," he said.

"But when, for instance, corn is grown in the rainy tropics, unlike the native vegetation, it is not in harmony with the climate and cannot retain the soil's fertility.

Farming for crops such as corn means there will be exposed ground during parts of the year. The rain beats down on the bare earth, leaching nutrients out of the soil. Even many of the current tropical crops such as the yam do not fit into the pattern.

"It is different with the natural vegetation of the humid tropics—the rain forests. Here, trees and plants retain the nutrients within themselves. As they die and leaves fall and decay, the nutrients are released and re-utilized. The forest roof is so thick that only a small proportion of the rain reaches the ground directly."

Fertilizers are being used to make up for the loss of nutrients, Dr. Cantlon said. However, there are definite limitations to the supply of some important substances, such as phosphorus and potassium. That is why we cannot continue to exploit the world's farm lands indefinitely at the present pace," he said.

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exposure photograph. In such tests, information is obtained through photographs and instrumentation on water landing characteristics of the capsule, which will parachute to earth at a speed of 30 feet a second or about 20 miles an hour.

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TECHNOLOGY

Record Heartbeats For Long Periods

A HEARTBEAT counter has been developed that can be strapped to a person's chest so that it will record his heartbeat for as long as 24 hours at a time. The device is small and rugged and contains a transistorized amplifier, a watch movement made into a counter, and a battery. It is connected to two electrodes that are cemented to the chest.

The counter was developed by Donald A. Rowley, Seymour Glagov and Peter Stoner of the University of Chicago in cooperation with engineers of the Illinois Bell Telephone Co. It is described in *Science* (Oct. 16).

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Questions

ASTRONOMY—How old does one astronomer suggest the universe is? p. 289.

GEOLOGY—What is the complete scientific name for the Moho? p. 290.

PEDIATRICS—When is the most favorable time for correctly diagnosing multiple pregnancies? p. 288.

PHYSIOLOGY—What new theory has been proposed explaining baldness? p. 289.

PUBLIC HEALTH—What is one disease humans may contract from monkeys? p. 286.

Photographs: Cover, National Aeronautics and Space Administration; p. 283, Smithsonian Astrophysical Observatory; p. 290, National Academy of Sciences-National Research Council; p. 296, Roberts Colonial House, Inc.

Do You Know

In 1958 forest insects killed enough timber in the United States to build 600,000 five-room houses, five or six times as much timber as lost to forest fires.

Most of the 8,000 species of ants known to man live outdoors, but a few nest in human residences.

Vanadium improves the toughness, mechanical properties and heat-treating characteristics of some steels often used in engine and motor parts.

In a recent U.S. survey of 2,623 patients more than 60 years of age who underwent major or minor surgery during a four-year period, there was a mortality rate of only 3.2%.

PUBLIC HEALTH

Urge Cycling for Health

BICYCLING would be a popular American form of exercise if our road builders would provide parallel paths on all highways.

Cycling is far more popular in Europe than in America, Dr. W. W. Bauer, director, department of health education of the American Medical Association, reported to the American Public Health Association at Atlantic City, N. J. Chicago recently closed four miles of Lake Shore Drive for Pan American cycle race qualifying heats, and again for the races themselves. Many lesser streets are being closed for play purposes. Many persons now believe that if main business streets can be closed for parades on busy weekends, they can be closed also for cycling and games at appropriate times, he pointed out.

Americans are currently going all out for physical fitness, Dr. Bauer said. He then commented that he considered it to be a "popular act." "How long this interest will be sustained is anybody's guess," he added, pointing out that the American public is famous for quick enthusiasms and equally sudden boredom.

Recreation itself may or may not involve activity. There is nothing wrong with the quieter pastimes such as reading, card games, collecting, photography, appreciation of music or other forms of art, he explained. But there must be another facet to fitness—activity.

Dr. Bauer then pointed out that emotional unrest turns up in the body as som-

ROCKETS AND MISSILES

Scale Model Tests Satellite Recovery

See Front Cover

FULL-SCALE and model tests of instruments, space capsule and materials are being made at the National Aeronautics and Space Administration's Langley Research Center, Langley Field, Va.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows a scale model of a space capsule being dropped in a water tank to simulate landing in an ocean after flight.

As the capsule nears the water surface it is reflected in the water in this multiple

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EDUCATION

Russians Study Dancing

RUSSIAN school children are preparing for ballroom dancing as well as satellite launching.

A recent visitor and critic of the Soviet system of school health, Prof. Jennelle Moorhead, of the Oregon State System of Higher Education, Eugene, said that Russian children in grades five through eight learn folk and ballroom dancing as well as other physical education subjects. In grades four through 11, physical education is taught as a subject twice a week, the researcher reported to the American Public Health Association meeting in Atlantic City, N. J.

The Russian child is bound by law to finish eight years of physical education. This includes gymnastics, track and field, skiing, and swimming (in southern Soviet states). Each school day starts with 20 minutes of gymnastics.

The Russian students, in elementary and secondary school, learn good manners, how to behave in school and in public, and relationships with other persons. These are similar to the subjects which have brought criticism from some United States educators who believe that these courses in U. S. schools are consuming time that can be spent on the three R's.

The students are also taught about the structure and function of the human body.

PUBLIC HEALTH

Monkey Research Dangers

LABORATORY monkeys may present a more serious public health problem than has been thought.

In the case of one disease—B-virus encephalomyelitis—there is no doubt about the real health hazard presented by infected captive animals.

"Until some practical method of control becomes available, this danger will continue," the scientists told the American Public Health Association meeting, Atlantic City, N. J.

This B-virus has been definitely identified as the cause of human deaths. Although the total number of reported cases of the disease, eight, is small, the scientists pointed out that cases are increasing as monkeys become more widely used for tissue cultured vaccines and other purposes. In monkeys the disease is mild and may not "show," said Drs. James E. Pries and Robert M. Sauer, both of the School of Veterinary Medicine, University of Pennsylvania, and Lee F. Schuchtardt, James M. Sillaman, S. Morton Zalick and Harry C. Fegley of Merck Sharp & Dohme. (An indication of the seriousness of this public health problem is shown by the numbers of men and monkeys involved at the National Institutes of Health. That research facility alone employs more than 3,000

"I should remind you that Communist doctrine denies the validity of the Mendelian law of heredity, and teaches a theory which holds that environment can alter heredity. On occasion I deliberately mentioned the Mendelian law of heredity to educated Russians, and found they had never heard the theory," Dr. Moorhead told colleagues.

The present school organization in Russia requires that each student attend eight instead of the former seven years of elementary school.

The Russian secondary school is now an 11-year program, instead of the former ten-year one.

The Russians also appear to be expanding in the cultural corner.

They have substantially increased the number of hours of study of a foreign language. The method of teaching has been changed to place emphasis on conversation and reading foreign texts, Dr. Moorhead explained. Furthermore, the Soviets plan to increase the student's exposure to the aesthetics very soon. Drawing is to be taught from the first to the seventh grades, while music and singing will be taught all eight years, two years longer than at present.

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monkeys which are handled by approximately 225 humans.)

So far, they reported, there is no vaccine or other product to immunize humans against the disease. Probably the best way to protect laboratory workers would be to prevent the disease in monkeys, the scientists suggested. Suitable covering and the use of anesthesia for even minor operations involving the live animal will help protect the laboratory worker.

Other diseases, including monkey pox and various bacteria-caused infections, are known to occur in monkeys. In many cases, however, it has not been possible to pinpoint the transfer of the disease from a monkey to a man.

In spite of the lack of specific information on the number of human cases of diseases originating from contact or association with monkeys, there can be no doubt that reservoirs of infection in monkeys are a potential source of human infection, the scientists conclude.

The large number of recently identified viruses with which no diseases have been associated may be causing diseases in both monkeys and humans. This should be investigated, the scientists indicate.

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PHYSIOLOGY

Our Weights Change

WOMEN ARE more slender than their mothers of a generation ago while men are becoming heavier than their fathers.

This is one of the significant findings of the largest statistical investigation undertaken in the health field, published by the Society of Actuaries under the title "1959 Build and Blood Pressure Study."

It has been found that the weights of women in their 20's average at least five pounds less than three or four decades ago. In fact, women of all ages now tip the scales several pounds lower. This is partly due to lighter clothing but reflects mainly the established vogue of slenderness that has outmoded Lillian Russell as the ideal figure.

In contrast, the average weights of short and medium men in their 20's and 30's are now about five pounds higher. The increase in men's weights at other ages and also for tall men has been generally smaller. Although the proportion of overweights has changed little over the years in both sexes, the proportion of men who are underweight has diminished, while the proportion of underweight women has increased appreciably.

The actuaries' study reveals that marked underweight is now a much less serious condition than in the past, but the excess mortality associated with overweight remains as high,

For instance, men with weights 20

pounds above average incur a penalty of about 10% higher mortality. Those weighing 25 pounds above average are subject to 25% excess mortality, while weights of 50 pounds above average are associated with an excess mortality of up to 50% or even 75%.

Women were found to be able to stand added weight better than men. The study also showed that weight reduction pays. Those who were overweight when insured, but were later given standard insurance because of sustained weight reduction, showed an immediate benefit of normal mortality, which continued for at least ten years.

The study also showed that even a small rise in blood pressure may signal potential danger. Here again, women were found better able to withstand high blood pressure than men.

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**Comparison of Average Weights in New Study With Current Standard
(Graduated Weights in Pounds)**

MEN			WOMEN										
AGES 15-16			AGES 17-19			AGES 15-16			AGES 17-19				
HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE		
5' 0"	98	103.5	-5.5	113	110	3	4' 10"	97	97	0	99	105	-6
5' 2"	107	111	-4	119	116	3	5' 0"	103	104	-1	105	109	-4
5' 4"	117	119	-2	127	124	3	5' 2"	111	110	1	113	115	-2
5' 6"	127	127	0	135	132	3	5' 4"	117	117.5	.5	120	121	-1
5' 8"	137	135.5	1.5	143	140	3	5' 6"	125	125.5	.5	127	128	-1
5' 10"	146	143.5	2.5	151	148	3	5' 8"	132	133.5	-1.5	134	136	-2
6' 0"	154	153.5	.5	160	158	2	5' 10"	140	140	0	142	144	-2
6' 2"	164	163.5	.5	168	168	0	6' 0"	148	148	0	152	152	0
6' 4"	176	178	-2							
AGES 20-24			AGES 25-29			AGES 20-24			AGES 25-29				
HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE		
5' 0"	122	118	4	128	124	4	4' 10"	102	111	-9	107	114	-7
5' 2"	128	124	4	134	128	6	5' 0"	108	115	-7	113	118	-5
5' 4"	136	131	5	141	134	7	5' 2"	115	120	-5	119	122	-3
5' 6"	142	139	3	148	142	6	5' 4"	121	126	-5	125	129	-4
5' 8"	149	146	3	155	150	5	5' 6"	129	133	-4	133	136	-3
5' 10"	157	154	3	163	158	5	5' 8"	136	141	-5	140	144	-4
6' 0"	166	163	3	172	169	3	5' 10"	144	149	-5	148	152	-4
6' 2"	174	173	1	182	181	1	6' 0"	154	156	-2	158	159	-1
6' 4"	181	183	-2	190	192	-2							
AGES 30-39			AGES 40-49			AGES 30-39			AGES 40-49				
HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE		
5' 0"	131	128	3	134	133	1	4' 10"	115	119	-4	122	126	-4
5' 2"	137	132	5	140	137	3	5' 0"	120	123	-3	127	130	-3
5' 4"	145	138	7	148	143	5	5' 2"	126	127	-1	133	135	-2
5' 6"	153	146	7	156	151	5	5' 4"	132	134	-2	140	141	-1
5' 8"	161	155	6	165	160	5	5' 6"	139	142	-3	147	149	-2
5' 10"	170	165	5	174	170	4	5' 8"	146	150	-4	155	157	-2
6' 0"	179	176	3	183	182	1	5' 10"	154	157	-3	164	164	0
6' 2"	188	189	-1	192	195	-3	6' 0"	160	163	-3	174	171	3
6' 4"	199	201	-2	203	209	-6							
AGES 50-59			AGES 60-69			AGES 50-59			AGES 60-69				
HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE	HEIGHT	NEW	OLD	CHANGE		
5' 0"	136	135	1	133	136	-3	4' 10"	125	129	-4	127	130	-3
5' 2"	142	139	3	139	140	-1	5' 0"	130	133	-3	131	134	-3
5' 4"	149	145	4	146	146	0	5' 2"	136	138	-2	137	139	-2
5' 6"	157	153	4	154	154	0	5' 4"	144	144	0	145	145	0
5' 8"	166	163	3	163	164	-1	5' 6"	152	153	-1	153	154	-1
5' 10"	175	173	2	173	174	-1	5' 8"	160	163	-3	161	164	-3
6' 0"	185	184	1	183	185	-2	5' 10"	169	171	-2			
6' 2"	194	198	-4	193	199	-6	6' 0"	180	177	3			
6' 4"	205	212	-7	204	213	-9							

PUBLIC HEALTH

Mother May Bathe Baby In Salad Oil or Shortening

MOTHERS might do better bathing their babies with salad oil or shortening than with certain baby lotions.

Many lotions contain 95% water, resulting in quick drying and little benefit to the skin, a dermatologist reports in *GP* (Oct.), published by the American Academy of General Practice.

Dr. Seymour L. Hanfling of East Orange, N. J., also attempted to clear up some skincare fallacies. Detergents, he says, are not more irritating than soaps. It is just that women forget that they are more effective and hence use too much.

Machine-laundered diapers can be just as safe for the baby as those that are hand-washed. Also, babies do not need daily baths, because they have little oil secretion and never develop body odor. Except during hot weather, two baths a week are adequate, he says.

Petroleum preparations, such as mineral oils, "cannot be absorbed and therefore cannot possibly nourish the skin." Instead, he says, these preparations have a protective function similar to that of protective creams.

Few high-water lotions have animal or vegetable oils that can be absorbed through the skin. The use of "any edible fat on the skin results in some useful replenishment of the skin oils." Some of the best, Dr. Hanfling reports, are hydros lanolin, the various salad oils, and the hydrogenated shortenings.

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PUBLIC HEALTH

Detergents Skip Filters; Reappear in Tap Water

THE HOUSEWIFE'S detergent is making a complete circle from the kitchen sink, down the drain, into the sewage for treatment, through the ground and back to the sink via the water tap.

Detergents are reappearing in drinking water because filter and other water purification methods that remove soaps from sewage just do not remove these synthetic washing helpers.

Thus, a serious public health problem has been created, Jesse M. Cohen, chemist at the water supply and water pollution research branch of the Robert A. Taft Research Center, Cincinnati, told the American Public Health Association meeting in Atlantic City, N. J.

In 1958 alone, more than 3.8 billion pounds of detergent were used in the U. S. compared to only 1.3 billion pounds of soap. More than 85% of this was used in the household. The tremendous leap forward in the use of detergents is reflected in a comparison of those figures with the history of both household cleansing agents. Soap has been made for 2,000 years while detergents were developed only in the past 25.

Currently, scientists are attempting to

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make a detergent from sugar, Mr. Cohen reported. One of the simplest tests for detecting detergent in household water is to watch for foaming at the tap. This is the most sensitive test and will detect concentrations as low as 0.8 part per million, he estimated. This test is also a warning signal that other pollutants may be present in the water.

The chemist expressed concern for the chronic effects of continued ingestion of heavy concentrations of such detergents. Scientists agree that efforts should be immediately made to gain some data on a long-term basis on whether or not there are physiological effects.

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PEDIATRICS

Brain Wave Meter Shows Multiple Pregnancies

THE MACHINE that measures brain waves can detect tiny heart beats in the womb and determine whether an expectant mother will bear a single child, twins or triplets.

Diagnosis can be made with 100% accuracy between the fifth and seventh months of pregnancy, Drs. C. A. Novotny, W. K. Hass and D. A. Callagan of the U. S. Naval Hospital, Portsmouth, Va., said.

The doctors conducted electroencephalograph tests on 295 women, obtaining 321 tracings. The occurrence of fetal death could also be spotted in most cases.

The 20th through the 27th week was the most favorable period, the doctors said, and 100% accuracy was possible when diagnosing twins or triplets during this period. The earliest positive diagnosis of twins was made at 16 weeks.

Their investigations were prompted by a desire for early diagnosis due to complications of multiple pregnancies; by concern about irradiation hazards of X-ray diagnosis, and by the increasing availability and efficiency of the electroencephalograph. Their report appears in the *Journal of the American Medical Association* (Oct. 17).

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AGRICULTURE

Chemical Saves Vitamins In Poultry Feed

A CHEMICAL called EMQ can now save both A and D vitamins in poultry feed.

This chemical was developed at USDA's Western Utilization Research and Development Division, Albany, Calif., and the Food and Drug Administration has given approval for its use as an additive to dehydrated alfalfa meal. Carotene, the compound responsible for vitamin A, is stabilized by EMQ so that only 30,000,000 units are lost by oxidation instead of the 100,000,000 units lost when it is not used.

EMQ also preserves the compound xanthophyll and vitamin D, both important for livestock, it is reported in *Agricultural Research* (Oct.).

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MEDICINE

Russian Government Provides for Physicians

RUSSIAN PHYSICIANS have few worries because "the state takes care" of them, the director of a Soviet medical institute said.

"In the USSR, improvement in doctors' professional skill is a matter of national importance," Prof. Z. I. Yanushkevichius, director of the Kaunas Medical Institute, told the Second World Conference on Medical Education in Chicago.

The state budget bears the whole expense connected with the maintenance of the advanced training institutes for doctors . . .," Prof. Yanushkevichius said. "The same goes for traveling allowances, etc. A doctor need not worry about who will replace him while he is absent. The state takes care of that."

He described courses at the 11 advanced training institutes that handle 27,000 doctors a year. Younger doctors, he said, are taught, among other things, medical specialties, foreign languages, and the fundamentals of Marxism and Leninism.

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ICHTHYOLOGY

Roccus I Peeps at Bass And Fleas Under Water

AN AQUATIC "peeping tom" called "Roccus I" is being used by University of Wisconsin scientists to study white bass in Lake Mendota and the tiny water fleas that bass feed on.

Designed by a University mechanical engineering professor, Donald Livermore, the Roccus I is a large, green, bootlike chamber made of $\frac{1}{8}$ -inch-thick steel. It is mounted on an 18-foot-long barge. On top are five 55-gallon drums. The watertight chamber floats, but can be submerged by filling the drums with 2,200 pounds of water.

When submerged, the chamber can be powered at about six miles an hour by a 35-horsepower outboard motor. It can hold two persons, but usually just one person occupies it to study marine life through one of six windows, two of which face downward.

University scientists are using the chamber to study the diet, schooling and spawning habits of white bass. Under the direction of Prof. Arthur D. Hasler, graduate student Donald McNaught is studying the tiny water fleas that are the favorite food of white bass. The water fleas rise to the surface in early morning and again at dusk, as do the bass. The Roccus I is used to study them near the surface and to observe variations in their density during the day.

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SCIE FIELDS

ASTRONOMY

Universe Found at Least Ten Billion Years Old

THE UNIVERSE is at least ten billion years old, some four billion years older than now generally thought.

This conclusion is based on a new age for the Milky Way galaxy, the gigantic pinwheel of billions of stars in which the sun and its planets, including earth, are located. The new age was calculated, with the aid of an IBM 704 computer, by Dr. Fred Hoyle of St. John's College, Cambridge, one of England's foremost astronomers.

His calculations are based on the life history of two types of stars. Those found in globular clusters, known as Population I, are bright, young hot stars. The others, known as Population II, are older stars with characteristics resembling those of the sun and other stars in the arms of spiral galaxies.

Dr. Hoyle used the observed magnitudes for certain nearby Population I stars. He also assumed, as is generally agreed, that Population II stars are older than those in Population I.

His life history curves for the older Population II stars started with an initial hydrogen concentration of 99%, helium nine-hundredths of a percent and a sprinkling of metal atoms. The starting composition for Population I stars was only 75% hydrogen, 24% helium and a much higher, although still sparse, concentration of metal atoms.

Dr. Hoyle's calculation and conclusions are reported to fellow astronomers in the *Monthly Notices of the Royal Astronomical Society* (Vol. 119, No. 2).

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PHOTOGRAPHY

Foresee Improved Movie Cameras

HIGH-SPEED motion picture cameras may one day react instantaneously to a stimulus and begin photographing an action at its very inception.

Such movie cameras could start rolling without any advance knowledge of the time the action would occur. They could be used to monitor failure of a mechanical component or a defective operation in a continuous manufacturing process occurring one time out of 10,000.

Development of such a camera was one of several future trends in high-speed photography reported at the University of Wisconsin by William G. Hyzer of Janesville, Wis., a consulting research engineer and authority on high-speed cameras.

The broad objective of high-speed photography, Mr. Hyzer said, is to slow down or stop actions that are normally a blur

to the eye, due to their short duration or their high velocity. Slowing them down allows them to be carefully observed, studied or chronologically analyzed.

Mr. Hyzer said he anticipated a further increase in the speed of cameras, shutters and short-duration light sources. This would permit recording and analysis of explosive reactions, re-entry phenomena and other hyper-velocity effects.

The image converter, an electronic device comprising a photosensitive cathode to receive a stimulus and a photographic screen to display and intensify the image, holds considerable promise as the high-speed "camera" of the future, he said.

Another development trend, he said, will be a decrease in size and weight of the camera package, and an increase in its reliability under shock, vibration and high temperature. Such a package could be built into aircraft, missile and satellite components to bring back hitherto unattainable air and space flight data.

Also envisioned was the integration of camera recording systems with other instrumentation facilities so that all recorded data from highly sophisticated test operations may be analyzed simultaneously and correlated rapidly with increased accuracy.

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TECHNOLOGY

Tractor Gets 3,000-lb. Tug From Electric Fuel Cells

AN ELECTRIC tractor that can tug a multiple-bottom plow through parched, packed earth with a pull of 3,000 pounds has been developed.

Although the tractor is strictly experimental, it points to the start of a revolution in powered farm machinery, a revolution that could spill over into the automotive field easily.

Instead of an ordinary engine, the tractor houses a small army of 1,008 fuel cells under its hood. These instantly convert bottled gases, chiefly propane, into electricity. The resulting direct current drives a 20-horsepower motor which powers the tractor.

Efficiency of this unit far surpasses that of diesel engines, reports Allis-Chalmers Manufacturing Company, Milwaukee, Wis. This is partly because little heat is generated in the electricity-producing chemical reaction.

"The possibility of producing electric power directly from a fuel at an efficiency of 90% is truly startling when compared to the best diesel engines, which are about 40% efficient," the company said.

Each individual fuel cell resembles a small battery. A mixture of fuel gases is fed to the anode. The gases are adsorbed by a catalyst, activated, and caused to react in an electrolyte. This reaction releases a stream of electrons, making direct current. Meanwhile at the cathode, oxygen is adsorbed and reacts with incoming current to complete the chemical and electrical circuit. The overall process yields water and carbon dioxide, plus electricity.

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PHYSIOLOGY

Disprove Theory on Cause of Baldness

THE THEORY that baldness is caused by a reduction in the amount of blood circulated through the arteries of the scalp has been disproved by a plastic surgeon.

Baldness may be caused, however, by a reduction in the circulation of blood through the veins in the scalp, Dr. Philip F. Corso of Memorial Hospital, New York, reported at the meeting of the American Society of Plastic and Reconstructive Surgery, at Miami Beach, Fla.

Dr. Corso reported that he injected a plastic material called methyl methacrylate into the veins and arteries of the heads of nine male cadavers, ranging in age from infancy to 84 years.

Although the arterial circulation of the scalp decreased sharply in the older specimens studied, the change was not accompanied by a loss of scalp hair, thus disproving the theory that diminished arterial circulation is the cause of baldness, the surgeon explained.

Further observations tended to support a theory, advanced by others, that diminished venous circulation in the scalp might be related to hair loss.

According to this theory, a fibrous layer of tissue, which stretches tightly under the skin of the scalp, may make it difficult for blood to pass through the veins in the area. Dr. Corso's study confirmed the impairment of venous circulation in the front of the scalp.

He suggested that surgery to relieve tension in this fibrous layer of the skull might improve venous circulation and possibly arrest hair loss.

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TECHNOLOGY

Closed-Circuit TV Speeds Radio News Broadcasts

TO SPEED presentation of news items over the British Broadcasting Corporation's radio service, a closed-circuit television system now provides news-readers and announcers with news flashes while they are actually broadcasting.

The system uses an industrial type television camera with a vidicon tube which is built into a special cabinet normally housed in the news-editing room.

The camera has a one-inch lens and scans the information contained within an area of about six by four inches which is illuminated by lamps built into the cabinet.

When an item of special interest comes into the news room, a script is prepared and placed in the cabinet under the camera lens. An image is immediately reproduced on a high-grade 14-inch picture monitor in the sound studio, and the news-reader can then read the item.

The new television system has materially speeded up broadcast of last-minute news, sports reports, police messages and traffic bulletins from the Automobile Association.

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GEOLOGY

Man to Pierce Earth's Crust

Scientists plan to drill a six-mile-deep hole through the crust of the earth and into the underlying mantle. They seek direct evidence to back up decades of geological speculation.

By RICHARD LITELL

MAN is eagerly seeking more knowledge of what surrounds the earth in outer space but has hardly begun to probe the depths of his own planet.

He has sent rockets to the moon and beyond but is not even sure of what lies six miles beneath the very ground he walks on.

Direct sampling of hitherto unreachd regions of the earth's interior could supply answers to countless scientific questions regarding the age, history and composition of the earth.

With this aim in mind, scientists are now planning to drill a six-mile-deep hole through the crust of the earth to the underlying mantle.

The earth's crust is a thin, slag-like covering of light rocks averaging 10 miles in thickness, a mere 400th of the earth's radius. Below the crust is a mantle and an inner core. Neither has ever been reached by man.

The mantle accounts for 80% of the earth's volume and is believed to be composed of a material similar to peridotite. The core is thought to be composed of a mixture of iron and nickel.

Between the mantle and the crust is a transitional layer known as the Mohorovicic (Mo-ho-ro-vic-ic) Discontinuity, commonly referred to as the Moho. Scientists know of the Moho's existence because seismic waves sent down through the crust experience an abrupt increase in velocity when they encounter this layer of chemical or physical change.

Key to Earth's Secret

It is the Moho that scientists hope to penetrate by digging this deepest hole yet attempted by man. They will thus be able to tap the underlying mantle, whose exact composition is one of the most important unsolved problems of geophysics.

This hole will not be dug on land, however, because the earth's crust under the continents averages 20 miles in thickness, whereas under the oceans it averages only five miles in thickness. Thus, the Moho and mantle are far closer to the surface of the sea than they are to the surface of the land, even allowing for the depth of the ocean, which averages about two and a half miles.

The deepest hole yet drilled by man was a Texas oil well, 25,340 feet (almost five miles deep). But this was drilled on land through a much thicker crust and the drill did not approach the mantle.

In charge of the Mohole Project, as the attempt to drill to the Moho is called, is the

AMSOC (American Miscellaneous Society) Committee of the National Academy of Sciences-National Research Council. The entire project, the Committee believes, can be successfully carried out within four years, provided the necessary \$15,000,000 can be raised. Studies have found the project to be both feasible and highly desirable.

What little scientists already know about the structure and composition of the earth's interior has been arrived at only indirectly. They are now looking forward to a direct sampling of nature's cache of geophysical secrets.

Successful sampling of the sediments of the ocean floor, the earth's core, the Moho and the mantle can reveal the nature of marine organisms back through time and perhaps to the origin of life. It can provide clues to the origin and structure of the earth and add meaning to, or confirm, great stores of geological data accumulated during past decades. Sediments could contain an uninterrupted record of the earth's development for two billion years.

Shifts in locations of the earth's magnetic poles may be recorded in the orientation of tiny magnetic particles discovered in the drilling, and temperatures of the oceans at various times in geologic past may be revealed by biochemical studies of shells and chemical studies of calcium carbonate on ancient sea floors.

Conflicting theories on the nature and composition of many regions can be resolved and the opportunity will exist for possible unexpected discoveries to be made.

Although a hole in the ocean floor a good distance from the continental shelf is not expected to yield any rich oil deposits, the petroleum industry could profit from the experimental work of this project, which could lead to faster, better and cheaper techniques for deep drilling and coring.

The average depth to the Moho from the surface of the sea (seven and a half miles), although far less than from land, is still beyond the reach of present drills. But by seismic surveying techniques it is possible to locate thin places in the ocean basins where the total depth to the Moho is less than 32,000 feet, or about six miles. These depths are probably within reach "if the best modern drilling equipment and technology can be assembled."

Two promising ocean sites have been in-



FLOATING DRILL—The CUSS 1, with a center drilling well, has been used to drill for oil in the waters of the continental shelf off California. Presently able to drill about 12,000 feet, it can probably be modified so that it can drill deep below the ocean bottom to a depth of 18,000 feet.

vestigated for the Committee thus far. One is in the Atlantic about 200 miles north of Puerto Rico, where the depth to the Moho is estimated to be 31,500 feet. Another is in the Pacific off Mexico between Guadalupe and Clipperton Islands. The latter now seems more promising but final site selection will not be made until after the first of the year.

The choice is a difficult one, for a favorable combination of many desired conditions must be sought. Weather and wave conditions must not hamper the work, the depth to the Moho must be small, the distance to a base of supplies must be short, the site must be truly representative of the crust in ocean basins, and an ample amount of sediment for coring operations must be present.

Also a thorough knowledge of local current activity must be on hand to help solve the problem of maintaining a drilling ship's position. Directly above the hole a ship's position must not be permitted to vary in a radius of more than two percent of the depth of the water (240 feet in 12,000 feet of water).

Preliminary work now under way includes studies of how an existing ship can be modified, exploration of promising sites and examination of promising ideas.

First Phase Drill Ship

The first phase of the project will consist of modifying a drilling ship for deep-water operations. This ship will be used within 18 months to drill a series of preliminary holes not to exceed 18,000 feet in depth. This is to test equipment and obtain engineering design data. Included will be comparisons of rotary, turbo and sound drilling methods and testing of various coring devices.

Until such information is obtained by direct experiment at sea, no one knows how to proceed with the design of a rig that will be capable of reaching the mantle—more than two miles deeper.

This first-phase ship might be the 1,479-ton floating drill rig CUSS I, now used for oil drilling in waters of the continental shelf off California. The preliminary and first-phase work is estimated to cost \$3,000,000.

The second phase, to cost \$9,500,000, will begin with the application of engineering data found in the first phase to the design of a new drilling ship. The ship will then be built (probably an existing hull will be rebuilt), will undergo shakedown tests, move into position on the final site and drill to the mantle.

The third phase covers the scientific direction of all the work and analysis of all results and is estimated to cost \$2,500,000.

The Committee hopes that half the needed \$15,000,000 will come from the Government and half from private industry.

Actually no one deep hole will be able to supply all the information desired but it will be a step in the right direction. Many scientists would like to see other nations drill Moholes of their own.

The Russians have already announced they have the equipment and capability to do the job and it is probably safe to surmise that they too intend to drill into the mantle.

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TODAY'S BEST BUYS

IN FREIGHTER TRAVEL

What is the most fascinating way to travel?

Ask any traveler who's gone by freighter, and he'll tell you there simply is nothing else to compare with this informal, lower cost way of seeing the world.

And for real value in freighter travel, Norman Ford, America's top travel expert, picks out for you in his big book *Today's Best Buys in Freight Travel* just those freighter trips which top all the others for comfort, good food, low cost, and the like.

What do you want when you travel by freighter?

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THE ARCHETYPES AND THE COLLECTIVE UNCONSCIOUS—C. G. Jung, transl. by R. F. C. Hull—*Pantheon Bks.*, Bollingen Series XX, 462 p., illus., \$7.50. This ninth volume of C. G. Jung's collected writings establishes his theoretic basis and describes specific archetypes.

ASTRONOMICAL PHOTOGRAPHY AT THE TELESCOPE—Thomas Rackham, foreword by W. H. Steavenson—*Macmillan*, 232 p., illus., \$7.50. Shows how the amateur can, with due attention to detail, produce results that may be of real scientific value.

THE BOY ENGINEER—Edward L. Throm—*Golden Press*, 248 p., illus. by E. Urbanowich and R. Pious, \$3.95. The story of engineering from prehistoric times to the atomic and space age, in popular language.

CAREERS IN ENGINEERING—Juvenal L. Angel—*World Trade*, 3rd ed., 30 p., paper, \$1.25. Discusses engineering fields and positions, training and sources of information.

EQUIPMENT AND SUPPLIES: Tested and Approved for Pre-School, School and Home—Committee on Equipment & Supplies, Alida H. Hisle, Ed.—*Assn. for Childhood Educ.*, rev. ed., 100 p., illus., paper, \$1.50.

THE EXPLORATION OF SPACE—Arthur C. Clarke—*Harper*, rev. ed., 200 p., illus., \$4.50. Acquaints the general reader with the present state of aeronautics, and with projects and possibilities of future explorations.

THE GARDENER'S WORLD—Joseph Wood Krutch, Ed.—*Putnam*, 476 p., illus., \$8.95 (till Jan. 1, 1960 \$7.95). Beautiful volume with great examples of the literature of plant lore and gardening, the gardening that produces flowers and beauty rather than seeds.

THE GOLDEN AGE OF QUACKERY—Stewart H. Holbrook—*Macmillan*, 302 p., \$4.95. Informal history of the patent-medicine makers and medicine frauds of the nineteenth and early twentieth century, before the Pure Food and Drug Act was established.

THE GOLDEN PICTURE BOOK OF SEA AND SHORE—Marion B. Carr—*Golden Press*, 57 p., illus. by Sy Barlowe, \$1.50. Tells children about tide pools, shells, fish, ocean currents and islands.

HIDDEN AMERICA—Roland Wells Robbins and Evan Jones—*Knopf*, 272 p., illus., \$5. Story of an amateur archaeologist who became a specialist in discovering American landmarks and digging for buried artifacts of the past.

INSIDE THE U. S. PATENT OFFICE: The Story of the Men, the Laws, and the Procedures of the American Patent System—Harry Kursch—*Norton*, 171 p., illus., \$3.95. Useful information for the inventor.

MODERN ASPECTS OF THE GEOLOGY OF NEW YORK CITY AND ENVIRONS—Kurt E. Lowe, Ed.—*N. Y. Acad. of Sciences*, Annals, Vol 80, Art. 4, 123 p., illus., paper, \$2.50. Series of conference papers.

NEBRASKA SYMPOSIUM ON MOTIVATION, 1959—T. C. Schneirla and others, Marshall R. Jones, Ed.—*Univ. of Neb. Press*, 243 p., \$4.25, paper, \$1. Research papers and comments, indexed.

ON THE FACE OF THE EARTH—Marion Gill MacNeil—*Walck, H. Z.*, 72 p., illus. by Robert P. MacNeil, \$2.75. Describes for younger readers the beginnings of life on earth and how man developed. Bibliography included.

OTUS: The Story of a Screech Owl—Robert M. McClung—*Morrow*, 48 p., illus. by Lloyd Sandford, \$2.50. Informative nature story for beginning readers.

PEOPLE AND PLACES—Margaret Mead—*World Pub. Co.*, 318 p., illus. by W. T. Mars and Jan Fairervis, photographs, \$4.95. Authoritative and beautifully presented introduction to anthropology for the teenager. Includes bibliography.

PETE AND REPETE: The National Park Bears—Acc Powell—*Glacier Nat. Park*, 12 plates, paper, \$1. Portfolio of appealing bear cub sketches, illustrating National Park rules.

PETROLOGY: Condensed and Simplified—Gordon Montague Butler—*Univ. of Ariz. Press*, 32 p. paper, 50¢. Acquaints students with the skill of identifying rocks by the use of a hand lens only.

THE PHYSIOLOGY AND TREATMENT OF PEPTIC ULCER—J. Garrett Allen, Ed.—*Univ. of Chicago Press*, 236 p., illus., \$7.50. Contains analysis of how the stomach works and summary of established principles of diagnosis and treatment.

THE PREHISTORY OF SOUTHERN AFRICA—J. Desmond Clark—*Penguin Bks.*, 341 p., illus., paper, \$1.50. The story of the beginnings of man, including the latest discoveries about the origins and cultural history of primitive man in southern Africa.

PRINCIPLES OF NUTRITION—Eva D. Wilson, Katherine H. Fisher and Mary E. Fuqua—*Wiley*, 484 p., illus., \$5.95. Textbook discussing the basic elements of nutrition.

PSYCHOTHERAPY WITH CHILDREN: The Living Relationship—Clark E. Moustakas—*Harper*, 324 p., \$5. Psychotherapist discusses the conditions for establishing significant relationships between therapist and the gifted, the handicapped, the frustrated and the normal child.

QUALITY CONTROL METHODS AND MANAGEMENT: Fourth Annual Symposium Transactions—Am. Soc. for Quality Control—*ASQC-Philadelphia Section*, 77 p., illus., paper, \$2.

ROCKETRY THROUGH THE AGES—Donald Cox and Michael Stoiken—*Winston*, 41 p., illus. by W. A. Kocher, \$2.95. Historical highlights of rocketry, from 1232 to 1959, presented simply for young readers.

(Continued on page 294)

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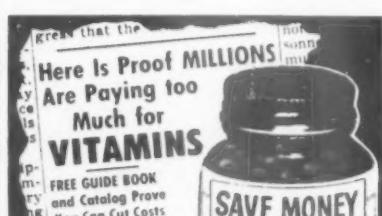
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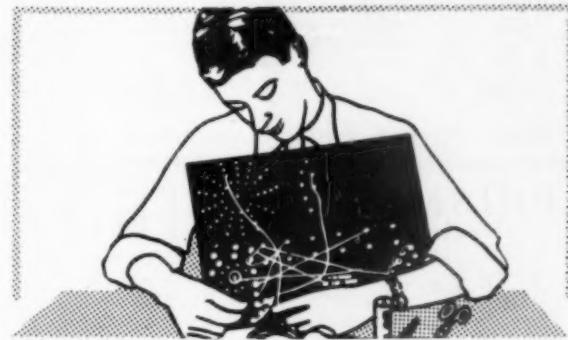
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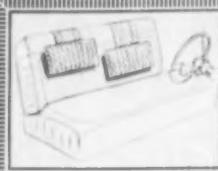
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Books of the Week

(Continued from page 292)

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THE SKY OBSERVER'S GUIDE: A Handbook for Amateur Astronomers—Newton Mayall, Margaret Mayall and Jerome Wyckoff—Golden Press, 125 p., illus. by John Polgreen, photographs, \$2.95. Packed with practical information on how to observe celestial objects, and offering many useful tables and maps.

SOLID STATE PHYSICS, Vol. 6, Part A: Preparation, Structure, Mechanical and Thermal Properties—K. Lark-Horowitz and Vivian A. Johnson, Eds.—Academic, 466 p., illus., \$11.80. Presentation of methods and principles for the advanced research worker as well as the graduate student and teacher.

THE SOVIET IMAGE OF FUTURE WAR—Raymond L. Garthoff, introd. by General James M. Gavin—Public Affairs Press, 137 p., \$3.25. Based on research of Soviet documents, author analyzes Russia's military thinking, planning and achievement.

THE STORYBOOK OF SCIENCE—Earl Schenck Miers—Rand McNally, 159 p., illus. by Jeanne Bendick, \$2.95. Shows science to be something which is part of the everyday world in which we live, in stories illustrating the eight fields of science. Intended for ages 9-11.

THERE'S ADVENTURE IN MARINE SCIENCE—Julian May—Pop. Mechanics, 160 p., illus. by Richard Potts, \$2.95. Fictionalized account of boys meeting a scientist engaged in the study of oceans.

THE TRUTH ABOUT DOGS—Leon F. Whitney—Nelson, 184 p., illus., \$3.50. Veterinarian discusses the fact that dogs of many breeds have changed for the worse, and what can be done to improve breeds.

TURN TO THE SEA—Athelstan Spilhaus—Nat. Acad. of Sciences-Nat. Res. Council, 50 p., illus., paper, \$1. Pamphlet conveying in non-technical terms a feeling for the importance and the excitement of studying the oceans.

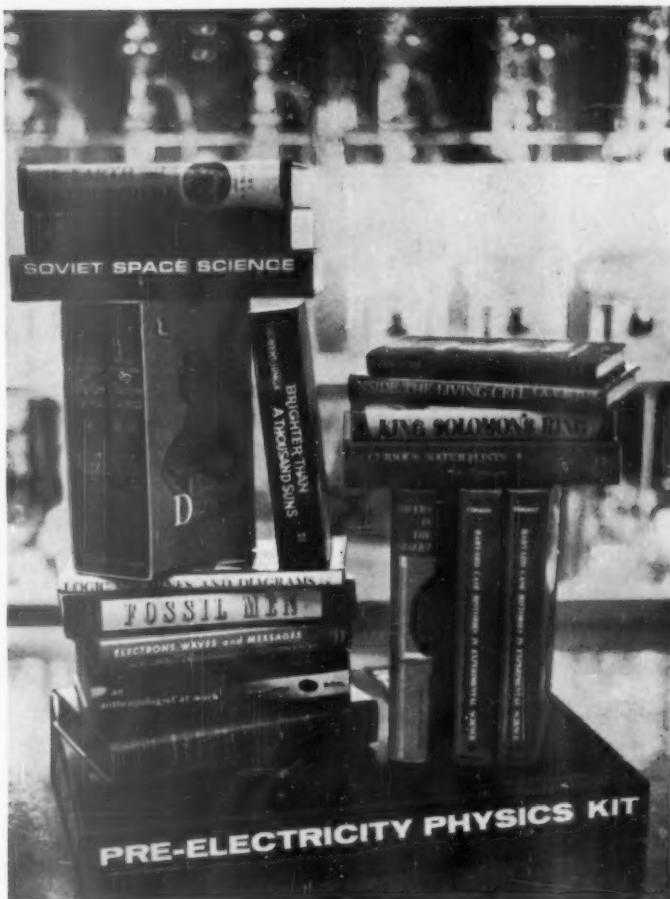
THE UNITY OF THE UNIVERSE—D. W. Sciamia—Doubleday, 228 p., photographs, diagrams by Joan Wedge, \$3.95. History of cosmology for the layman, showing man's evolving view of the universe, from ancient Greece to Mount Palomar.

WALT DISNEY'S PEOPLE AND PLACES—Jane Werner Watson and Staff of Walt Disney Studio—Golden Press, 176 p., illus., \$4.95. Takes young reader to Lapland, Scotland, Sardinia, Samoa, Japan, and other faraway lands.

WHAT IS CYBERNETICS—G. T. Guilbaud, transl. from French by Valerie MacKay—Criterion Bks., 126 p., illus., \$3.50. Presents Cybernetics in terms the layman can understand, as essentially a new way of thinking about the organization of action.

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WINDOW TINTER, consisting of a liquid plastic in a range of eight colors, may be applied to window panes while in place. It dries in 30 to 40 minutes and can be washed without scratching, peeling or chipping. Tinting, it is claimed, can save on air-conditioning and heating costs and afford good sun control.

Science News Letter, October 31, 1959

PAINT SOLVENT is said to keep paint-soaked brushes soft for weeks or months. It is a gelled liquid that chemically "lubricates" fresh paint to prevent it from drying on brushes. One dip preserves softness without cleaning. The solvent may be wiped with newspaper and the brush will be ready for use again.

Science News Letter, October 31, 1959

GARDEN HOSE NOZZLE may be used for fire extinguishing or garden care. The single-orifice aluminum nozzle has no internal parts. Water striking a rigidly attached stainless steel pin makes a very fine fog-like spray.

Science News Letter, October 31, 1959

MULTIPLE PLANTER in tree form, shown in the photograph, is a three-tiered, 3½-inch high brass stand with carrying handle and ten jardinieres designed to hold



regular three-inch clay pots with plants. The planter may be used in homes, offices, and display rooms.

Science News Letter, October 31, 1959

BLACKBOARD TEACHING AID, shaped like a T-square, can be mounted on any board in seven minutes. Mounted in a track so that it is movable along the top

of the board, it is adjustable to any angle. With it, a teacher can rule parallel lines at any angle and produce visual-aid diagrams.

Science News Letter, October 31, 1959

DECORATIVE FLOODLIGHTS for outdoor use are weatherproof and vented for cooler, cleaner operation and longer lamp life. They are designed for exteriors requiring a high degree of architectural and color fidelity.

Science News Letter, October 31, 1959

SAWHORSE BRACKETS enable the homeowner to assemble in 30 seconds a horse that will support a half ton. With the brackets and some two-by-four-inch lumber, picnic tables, pingpong tables and workbenches can be set up quickly. No nails, screws, miter cuts or tools are required with the pincer-action brackets.

Science News Letter, October 31, 1959

CATTLE BACK-SCRATCHER automatically applies insecticide and oil on bodies of cattle as they scratch themselves. It consists of a flexible braided steel tube that revolves on a cable running diagonally from a post to the ground. Oil, which saturates a fibrous wick in the tube, keeps away lice, ticks, flies and grubs.

Science News Letter, October 31, 1959



Nature Ramblings



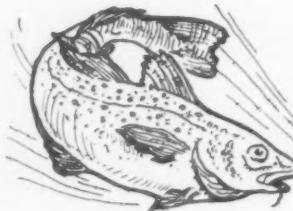
By HORACE LOFTIN

THE ANGLER who hooks and lands a big fish catches more than just that many pounds of piscatorial fin, flesh and bones. If he takes a closer look at his prize, he can see that he has taken a veritable zoological garden along with his fish.

First, if he examines the skin of his catch, he may find some leeches feeding thereon. This is just a preview of what can follow. A look into the mouth may reveal other types of leeches, and if the fish is from salt water there may be a monstrous-looking parasitic crustacean (a copepod) clinging to its tongue.

The gills are favorite spots for a whole new host of parasites. In fresh water, the young forms, or larvae, of clams and mussels clamp onto fish gills. Here they hitch a free ride until they are mature shellfish. In abnormal situations, such as is found in fish lachrymiae, these larval shellfish may cause trouble; but in nature they are not much of a menace to the fish population. Then there is a peculiar group of flat-

Floating Zoo



worms, small but with the big name of "monogenean trematode," which also uses the gills of fishes for free room and board. These creatures are armed with awesome suckers that are generously supplied with numerous sharp hooks. They dig into the gills with these holdfasts and enjoy the fish's reluctant hospitality for life.

The story is much the same inside the fish as well as out. What food the fish manages to eat must be shared with a number of parasitic flukes and tapeworms that have taken up residence in his in-

testines. An examination of the fish's liver, kidney, lungs and other viscera usually turns up new and different kinds of parasites, mostly types of flatworms.

Many an angler has had the prospect of a good fish dinner dimmed when he discovers "white grubs" buried in little cysts throughout the flesh of his catch. These are juvenile stages of tapeworms, generally, which are patiently waiting for the fish to be eaten by a larger fish or carnivorous animal when they will come out of the cysts to mature in the intestine of the new host. (Chances of human infection in this way are practically nil, however, unless a person delights in eating raw fish. Cooking destroys these cysts. The vast majority of these worms fail to live in human intestines under any conditions.)

But this is not to berate the poor fish. Almost any animal has its normal complement of external and internal parasites. In fact, it is a major task to find an animal without parasites. As Robert Burns wrote, these "greater fleas have lesser fleas" and on ad infinitum.

Science News Letter, October 31, 1959

